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## **1.0 PURPOSE AND SCOPE**

DOE O 422.1, Section 2.r, requires that a labeling program be established and maintained to help ensure facility personnel are able to positively identify equipment they operate. This standard ensures equipment abbreviations and descriptions provided by Equipment Identification Numbers (EINs) and shown on labels is established and easily understood by facility personnel. In addition, it provides a means for drawings, procedures, round sheets, and piping and instrument diagrams (P&IDs) to show consistent EINs and labels for the same piece of equipment installed in the field. (5.1.2)

This standard is applicable to labels applied to equipment in WRPS operating facilities. This standard does not mandate application of labels to equipment in administrative, support, or other peripheral facilities, systems, or structures. If it is determined necessary to apply labels to equipment in administrative, support, or other non-process-related peripheral facilities, systems, or structures, those labels shall follow this standard (with the exceptions listed below and in Table A-2).

Hanford-installed modifications, or vendor equipment used to support WRPS operations (manipulated by procedure or work instruction), or hazardous energy control isolation shall be identified either by a uniquely-identified existing permanent label, or WRPS-installed temporary label in accordance with this standard.

New EINs for equipment and piping installed across all WRPS facilities (Tank Farms, 242-A Evaporator, 222-S Laboratory, Effluent Treatment Facility (ETF), Treated Effluent Disposal Facility (TEDF), and Liquid Effluent Retention Facility (LERF)) shall be obtained from SmartPlant®1 Foundation (SPF). SPF contains standardized formats for EINs (in accordance with this standard) and uses standardized location designators, system acronyms, component type acronyms, and automated sequence numbering. Additional information on creating EINs and the information to be provided for new equipment is provided in TFC-ENG-FACSUP-C-23.

EINs created prior to the implementation of SPF or prior to this standard may have been created to different format requirements than those specified in this standard. There is no expectation in this standard that EINs created prior to SPF or prior to this standard be renumbered or re-labeled to match the format of this standard. Requests for deviation to any of the numbering or labeling requirements of this standard shall be requested from the Standard Owner. Deviations to the requirements of the standard are not desirable but will be considered on their merits. Approved deviations are documented in Tables A-1 and A-2 of this standard. These tables will be periodically updated to reflect newly agreed deviations. New deviations may be used once agreed by the Standard Owner prior to incorporation into this standard.

The following procedures and legend drawings have historically been used to number and label equipment at 222-S Laboratory, 242-A Evaporator, ETF, LERF, and TEDF. Location identifiers, systems, and component acronyms from these sources have been incorporated into SPF and standardized where appropriate. Reference to these procedures and standards should not normally be required for creating new EINs. New EINs within these facilities shall be obtained from SPF as previously stated.

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1 SmartPlant® is a registered trademark of Intergraph Corporation of Madison, Alabama.

**TANK FARM EQUIPMENT  
IDENTIFICATION NUMBERING AND  
LABELING STANDARD**

- EINs and labeling of equipment and piping installed in the 222-S Laboratory shall comply with ATS-310, Section 11.18, “Equipment and Piping Labeling.”
- EINs and labeling of equipment and piping installed in the 242-A Evaporator shall comply with drawing H-2-98986, Sheet 1.
- EINs and labeling of equipment and piping installed in the ETF shall comply with drawing H-2-89351-1, “Piping & Instrument Diagram – Legend.”
- EINs and labeling of equipment and piping installed in the TEDF shall comply with drawing H-2-79601-1, “P&ID Collection Symbols and Legend” and H-2-815119-1, “P&ID Disposal Station Symbols and Legends.”
- EINs and labeling of equipment and piping installed in the LERF shall comply with drawing H-2-79601-1, “P & ID LERF Basin & ETF Influent Symbols & Legend” and H-2-827217-1, “Piping P&ID Groundwater Transfer, Head-End.”

EINs and labeling of consumables (e.g., Safety-Significant Drum Vents) are exempt from this standard.

Specific guidelines are provided for EINs and labels including specifications, formats, and materials for labels used in tank farms. In addition to equipment, doors to rooms should be labeled so that personnel can identify the room and, if applicable, the equipment inside. (5.1.1, 5.1.2, 5.1.3)

The following components shall be labeled: (5.1.1, 5.1.2, 5.1.3)

- Above ground piping
- Valves and dampers
- Major equipment (e.g., tanks, pumps, motors and compressors)
- Switches
- Circuit breakers (4.16KV, 480V, 120VAC/DC, etc.)
- Fuse blocks or fuse locations
- Instruments and gauges
- Busses and motor control centers
- Cabinets (including internal components such as relays, terminals, etc.)
- Room doors
- Emergency equipment (such as fire alarm stations, sound powered phone headsets, etc.)
- Fire protection systems
- Any named safety structures, systems, and components (SSC) item or operator control.

The technical basis for the requirements in this standard, and approved deviations, can be found in RPP-RPT-28581, “Technical Basis Document for TFC-ENG-STD-12, Tank Farm Equipment Identification Numbering and Labeling Standard.”

## **2.0 IMPLEMENTATION**

This standard is effective on the date shown in the header.

New EINs for equipment and piping installed across all WRPS facilities (Tank Farms, 242-A Evaporator, 222-S Laboratory, ETF, TEDF, and LERF) shall be obtained from (SPF. Revision D-8 of this standard clarifies this requirement for Tank Farms, 242-A Evaporator, and 222-S Laboratory and implements the requirement for ETF, LERF, and TEDF.

EINs created prior to the implementation of SPF or prior to implementation of this standard may have been created to different format requirements than those specified in this standard. There is no expectation in this standard that EINs created prior to SPF or prior to this standard be renumbered or re-labeled to match the format of this standard. Requests for deviation to any of the numbering or labeling requirements of this standard shall be requested from the Standard Owner.

All Safety-Significant Waste Transfer Primary Piping Elements installed after the issue date of revision C of this standard must be labeled unless specifically exempted in Attachment A. Primary piping equipment in storage shall be labeled as required prior to installation.

Requests for deviation to any of the numbering or labeling requirements of this standard shall be requested from the Standard Owner. Deviations to the requirements of the standard are not desirable but will be considered on their merits. Approved deviations are documented in Tables A-1 and A-2 of this standard. These tables will be periodically updated to reflect newly agreed deviations. New deviations may be used once agreed by the Standard Owner prior to incorporation into this standard.

### **3.0 STANDARD**

Approved deviations from the requirements of this standard are identified in Attachment A.

#### **3.1 General Requirements**

1. EINs are established per TFC-ENG-FACSup-C-23, and associated SPF “Tag” form instructions.
2. Application of labels that are inconsistent with this standard, unless addressed by approved deviations, are prohibited.
3. All labels shall include the first three items below, and then additional information as space permits:
  - The unique assigned EIN
  - Equipment description
  - Bar code (if used)
  - Fed From (power supply breaker) information
  - Old EIN (if used).
4. Labels should be permanent, securely attached, and have distinguishable, easy to read information. A description and power supply information should also be provided.
5. Above grade piping shall be labeled to indicate the fluid contained and the normal flow direction. ANSI/OSHA color coding for piping should be used, and pipes containing

potentially radioactive, toxic, or explosive chemicals or gases shall be uniquely marked.  
(5.1.2, 5.1.3)

6. The need for labeling systems and/or equipment in high radiation fields shall be evaluated against as low as reasonably achievable (ALARA) program considerations and, if practical, systems and components in high radiation areas shall be labeled when scheduled maintenance or associated work is performed.

### 3.2 Equipment Identification Number Structure

The following are the conventions for numbering equipment, where the General EIN Number convention as described in Section 3.2.1 applies to all types of equipment unless described specifically in the following sections or where specifically exempted as listed in Attachment A. The following list shows those items that have specific naming conventions that are different from the general convention.

Section #	EIN Numbering Convention
3.2.2	Waste Transfer Line <ul style="list-style-type: none"> <li>Buried Waste Transfer Line</li> <li>Hose-In-Hose</li> </ul>
3.2.3	Jumper <ul style="list-style-type: none"> <li>Rigid Jumper</li> <li>Flexible-Metal Hose</li> <li>EPDM Hose</li> </ul>
3.2.4	Other Transfer System Elements <ul style="list-style-type: none"> <li>Hose-In-Hose Adapters</li> <li>PUREX Type Process Blank</li> <li>Chem Connector Process Blank</li> <li>Tank Return (Numbered Inlet Riser)</li> <li>Tank Return Equipment Mounted in a Riser</li> <li>Other Miscellaneous Equipment</li> </ul>

#### 3.2.1 General Equipment Identification Number Convention

The Standard EIN is comprised of five fields, described below. These fields were originally derived from fields in the Computerized Maintenance Management System (CMMS) – CHAMPS, when CHAMPS was the source of EINs, prior to implementation of SPF. (see Figure 1 for EIN and label CMMS data file structure). A crosswalk is provided in the table below as to how these standard fields are addressed in SPF. Since CHAMPS is no longer used for EIN creation and has been replaced by SPF as the Master Equipment List, a future revision to this standard will provide a complete update to the following sections to remove reference to CHAMPS and fully reflect the use of SPF.

Specific EIN conventions related to Safety-Significant Primary Piping are described in the following sections.

**TANK FARM EQUIPMENT  
IDENTIFICATION NUMBERING AND  
LABELING STANDARD**

## AN801A-CHEMB-TISHH-123A

FARM  
(Field-1)

LOCATION  
(Field-2)

SYSTEM  
(Field-3)

COMPONENT  
(Field-4)

SEQUENCE  
(Field-5)

FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION	SPF IMPLEMENTATION
1	FARM	Designates tank farm where equipment or component is located.	These fields are completed by identifying the “Primary Location” in SPF. For all WRPS controlled facilities and locations in SPF, SPF includes a location designator specific to that facility/location e.g. selecting 241-AN-01A as the “primary Location” in SPF will assign AN01A as the farm/location identifier.
2	LOCATION	Designates building, tank, pit, or other structure the equipment or component is located in, on, or near. Items not directly related to a specific structure location are identified by the general area where they are located (241, 244, 151, etc.).	
3	SYSTEM	Designates system with which equipment or component is associated.	This field is completed by identifying the “primary System” in SPF. For each system in SPF (broken down by facility), SPF contains a system acronym e.g. For Tank Farms, selecting a “Primary System” of 241-WT (Waste Transfer), will assign a system designator of WT.
4	COMPONENT	Describes equipment or component function.	In SPF, selection of the component type is the starting point for EIN creation. From the Tag Type tree in SPF, selecting a tag type of PUMPS>P, Pump will assign the appropriate acronym for the type of equipment, in this example P for a general pump.
5	SEQUENCE	Unique sequence designator (e.g., 123A) for a particular equipment or component. The first three characters (required) are always numbers; the fourth, if used, must be an alpha character.	In SPF the sequence number is automatically assigned, although the “Start at number” field may be used to specify a specific 3-digit sequence number if desired. The “ENS Sequence Suffix” field in SPF is used to specify an alpha character suffix for designating duty and standby components e.g. 001A or 001B.

Deviations to the EIN numbering convention are shown in Table A-1 in Attachment A.

1. The following rules apply when assigning EIN SEQUENCE numbers:
  - a. With the exception of “redundant trains,” “instrument loop components,” and as noted below, the sequence number is considered random and provides uniqueness between two otherwise identical component EINs.
  - b. Sequence numbers range from 001 to 999.
  - c. Sequence number assignment typically follows the process flow. Low numbers are at the process beginning and high numbers are at the process end.

EXCEPTIONS: Original numbers on the standard hydrogen monitoring system (SHMS) and gas characterization system (GCS) related to wire numbers. There are no plans to change these numbers to the current standard.

- d. Embedded tank thermocouples may use the original temperature element numbering coinciding with existing wire number coding.
- e. Risers are considered a tank-related structure and may be labeled beginning with number 001. Sequence numbers repeat from system to system, tank to tank.
- f. Redundant equipment trains shall have sequence numbering that clearly indicates the different trains (e.g., Train A: AW241-VTP-V-110 and Train B: AW241-VTP-V-210.)

NOTE: Associated equipment (instrument loops and associated control valves) may receive the same sequence number. This sequence number cannot be used again for any other device in the same system for the same farm.

- g. Like components with the same sequence number (see note above) use alpha suffixes (for example, in instrument loops: TI-110A, TI-110B, TI-110C, etc.)
- h. Alpha suffixes to be used for components that perform the same function shall be labeled such that the components are sequenced as follows: begin first with local equipment, then control room equipment and lastly, remote equipment. Alpha suffixes are used to differentiate between like components within a single loop, but are NOT used to group like components from different loops.

EXAMPLE: A leak detector that has an alarm at the detector, in the control room and at the evaporator could have leak detection alarm (LDA) EINs with the following Component and Sequence descriptors:

- LDA-101A at the detector
- LDA-101B in the control room
- LDA-101C in the evaporator building.

- i. The electrical distribution system boundary is located at the final electrical component (e.g., motor control center, disconnect switch, distribution panel, etc.) feeding another system's auxiliary equipment (e.g., exhaust fan motor, pump motor, motor-operated valves, etc.). The portable ventilation skid equipment

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<b>IDENTIFICATION NUMBERING AND LABELING STANDARD</b>		

may be labeled as part of the VTP system. The electrical feeder to that skid will be part of the VTP system. Refer to the system design descriptions for a description of the system interface boundary. (5.1.4)

- j. Local disconnects shall have the same system designation and sequence number as the equipment or component they power.
- k. Auxiliary equipment (e.g., current transformers, meters, indicators, etc.) associated with a breaker either within, or associated with the cubicle, do not have an EIN because they are a subcomponent of the equipment.
- l. Motors, which are by application considered separate from the driven equipment, are individually numbered using the same sequence number as the driven equipment.

NOTE: Small motor pump combinations (e.g., vacuum pumps) are identified by the pump EIN only.

- m. FARM designators help identify the location for a component within the double-shell/single-shell (DST/SST) tank farm system. When the component is not located in a specific tank farm, the component “Farm” designator shall reflect the location nearest to the component. This includes all components installed inside the building or within close proximity to the building that are located outside the building. In this case, the associated P&ID shall show the component with a border drawn around it or a reference note beside it to indicate the physical location of the component. This includes all components installed inside the building or within close proximity to the building that are located outside the building. When the component is not located in a specific tank farm, inside a building or within close proximity to a building they shall be labeled as E241, if in the East area, or W241 if in the West area. In this case, the associated P&ID shall show the component with a border drawn around it or a reference note beside it to indicate the physical location of the component. (5.1.4)

Example: Component AY271-WT-WFA-140 supports the AY DST System and is labeled “AY”. This component is physically located in 241-A271 Building. The associated AY P&ID shows this component with a border surrounding it, identifying it at the “A-271” location.

EXCEPTION: An exception to this rule exists at the 241-AZ building for equipment serving the AN and AY tank farms. See PER-2004-5809 and PER-2005-0058 for a complete description. There are no plans to change these EINs to meet the requirements of this standard. New equipment shall follow this standard. (5.1.4)

- n. Equipment or subcomponents that are labeled by the manufacturer may have the manufacturer label in parenthesis after the assigned EIN.

Example: An enclosure, panel, or system that has a number of components contained within that have manufacturer provided labels, may have EINs as follows:



- 
- AN241-EDS-DP-130
  - AN241-EDS-DP-130(CB-1)
  - AN241-EDS-DP-130(CB-2)
  - AN241-EDS-DP-130(CB-3)
  - AN101-WT-LDE-180
  - AN101-WT-LDE-180(LD1)
  - AN101-WT-LDE-180(LD3).
2. Pushbuttons, Lights, Selector Switches, and Hand Switches.
    - a. If the associated panel is assigned an EIN/label and the vendor has labeled the equipment adequately on the panel, no EIN or field label is required; otherwise, this standard applies.
  3. Portable or mobile River Protection Project (RPP) equipment (e.g., trailer or skid mounted compressors, generators, etc.) that may be moved from farm to farm or other locations are assigned portable farm and location EIN codes as follows:
    - “PO” is entered in the FARM field
    - “R##” is entered in the LOCATION field (where ## is a two or three digit sequence number; e.g., POR25). Note: New POR numbers are assigned by SPF Administration.
    - Remaining EIN fields are completed like all other equipment.
  4. Ground Fault Circuit Interrupters (GFCIs) are assigned unique EIN codes as follows:
    - GFCI-12345 is entered in the first line
    - FED FROM is entered in the second line
    - Power Source is entered in the third line
    - Remaining EIN fields are completed like all other equipment.
  5. CHAMPS (Computerized History and Maintenance Planning Software) application may have attached location on the end of duplicated EIN numbers. CHAMPS combined two databases. As a result, some EINs were found to be duplicated. So as not to lose the history of work performed on one of the duplicated assets, the location where the asset originated will be attached to the end of the EIN. This tells the users which database the history of this asset originated in.
 

For example: Asset C103-VTP-EJ-102 was a duplicated EIN, one in each former database. The combined database now contains C103-VTP-EJ-102 and C103-VTP-EJ-102-CLO. The attached-CLO at the end lets you know that the history of this asset originated in the old CLO database.
  6. Instruments that perform multiple functions (e.g., Speed Indicator (SI), Speed Indicator Switch High (SISH), and Speed Indicator Switch High High (SISHH)) all in one device shall have all of the functions identified in the component field with a backslash separating them (e.g., Speed Indicator - POR346-WT-SI/SISH/SISHH-102).

**3.2.2 Waste Transfer Line Equipment Identification Numbering****3.2.2.1 Buried Waste Transfer Line Numbering Convention**

The following are specific requirements for establishing EINs for buried waste transfer lines. General requirements are listed previously in Section 3.2.1.

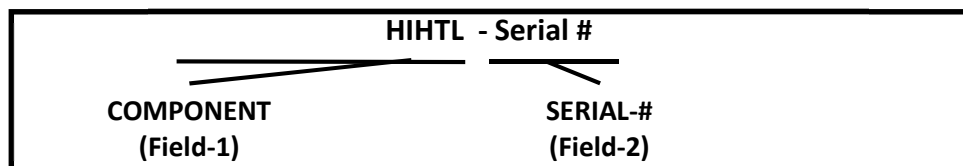


FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1*	FARM	Designates tank farm where equipment or component is located.
2	LOCATION	Designates the Pit or Structure at either terminus of the line.
3	SYSTEM	Designates system with which equipment or component is associated.
4	COMPONENT	Designates the component, specifically WTL for Waste Transfer Line.
5 <sup>†</sup>	SYS DESIGNATOR	Designates the type of line, e.g., SN for Supernatant.
6 <sup>†</sup>	LINE #	Designates the assigned Line Number.
<p>* Field # 1, Farm, may be eliminated if the location (Field #2) identifies the farm.</p> <p><sup>†</sup> Use the assigned System Designator and Line # for installed lines. For new lines, assure that the Line # is unique. Line numbers sequences are found on Reference Drawing H-14-020000 SH5.</p>		

An example of an EIN for a buried waste transfer line located in the AW farm with a termination in Valve Pit A is: **AWVPA-WT-WTL-SN-268**.

**3.2.2.2 Hose-In-Hose Waste Transfer Line Segments Numbering Convention**

The following are specific requirements for establishing the EINs for Hose-In-Hose Waste Transfer Line (HIHTL) segments. General requirements are listed previously in Section 3.2.1.



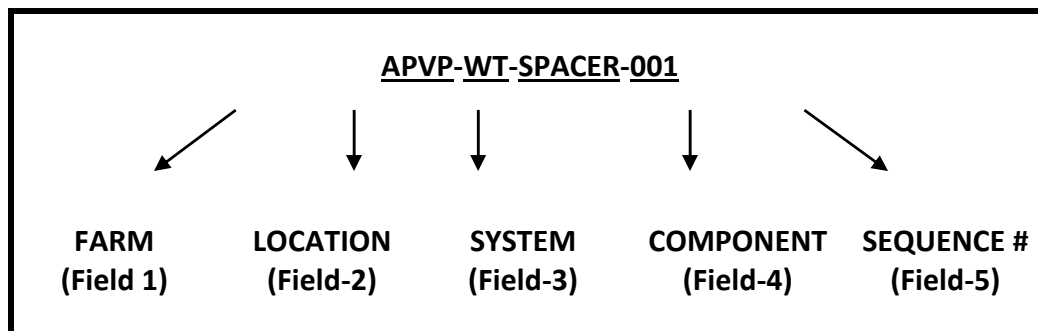
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FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1	COMPONENT	Designates the component, specifically HIHTL for Hose-In-Hose Transfer Line. (Optional)
2 <sup>†</sup>	SERIAL #	Designates the manufacturer's serial number.
<sup>†</sup> Serial Numbers for HIH Segments are found in Hanford Drawing H-14-106249, "HIHTL Tracking Table"		

An example of an EIN for a HIH Segment with a termination in POR104-WT-VP-001 Portable Valve Pit is: **HIHTL-I-68511-0-01**.

### 3.2.2.3 Waste Transfer Line Spacers

The following are specific requirements for establishing the EINs for Waste Transfer Line Spacers. General requirements are listed previously in Section 3.2.1.



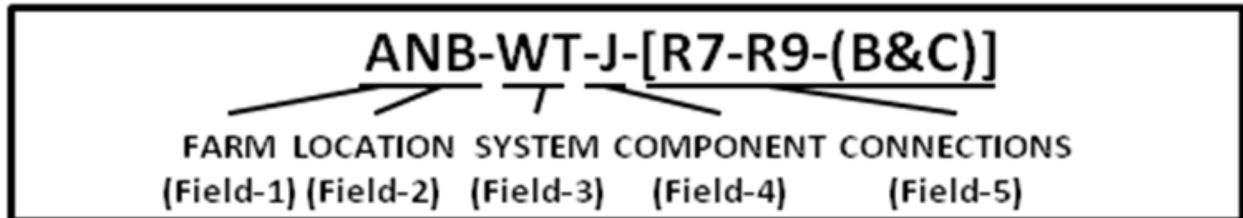
FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1	FARM	Designates tank farm where equipment or component is located.
2	LOCATION	Designates the Pit or Structure at either terminus of the line.
3	SYSTEM	Designates system with which equipment or component is associated.
4	COMPONENT	Designation is SPACER for Waste Transfer Line Spacers.
5 <sup>†</sup>	SEQUENCE #	Designates the unique number assigned to a particular Waste Transfer Line Spacer.
<sup>†</sup> Sequence Numbers for Waste Transfer Line Spacers are assigned and tracked on Hanford Drawing H-14-109724, "Nozzle Spacer."		

### 3.2.3 Jumpers Equipment Identification Numbering

There are two general types of jumpers, rigid and flexible. Flexible jumpers are further divided into Flexible-Metal Hose Jumpers (FMJ) and Ethylene Propylene Diene Monomer Hose jumpers (EPDMJ).

**3.2.3.1 Rigid Jumper Equipment Identification Numbering Convention**

The following are specific requirements for establishing EINs for rigid jumpers. General requirements are listed previously in Section 3.2.1.



FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1*	FARM	Designates tank farm where equipment or component is located.
2	LOCATION	Designates the Pit or Structure where the jumper is located.
3	SYSTEM	Designates system with which equipment or component is associated.
4	COMPONENT	Designation is "J" for Jumper.
5	CONNECTIONS	Designates in brackets the various connection points on the jumper as shown in the P&IDs and Piping Diagrams. Connections in parentheses indicate a PUREX Nozzle that connects to another jumper.
* Field # 1, Farm, may be eliminated if the location (Field #2) identifies the farm.		

An example of an EIN for a rigid jumper in pit AW02A with connections points to nozzles H, N & U is: **AW02A-WT-J-[H-N-U]**.

Another example of a jumper with connection points R7 and R9 and B and C (where B & C are PUREX Nozzles for connection to other jumpers) is: **ANB-WT-J-[R7-R9-(B&C)]**.

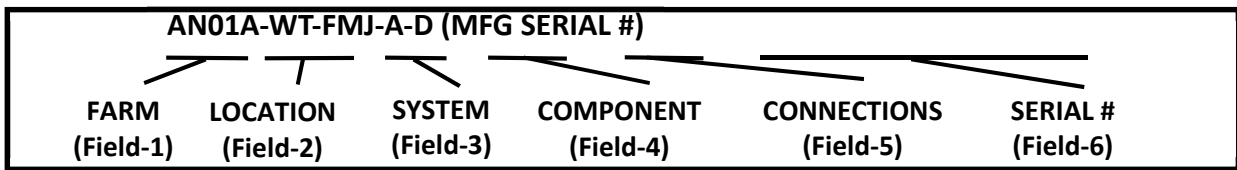
An example of a rigid jumper, called a slurry manifold assembly with 5 PUREX Nozzle connections to other jumpers, in a portable waste retrieval structure is:  
**POR209-WT-J-[(10-11-12-13-14)]**.

**3.2.3.2 Flexible-Metal Hose Jumpers**

The following are specific requirements for establishing EINs for flexible-metal hose jumpers. General requirements are listed previously in Section 3.2.1. If the jumper is relocated either to another connection point within the pit or structure or to another pit or structure, the EIN would be revised.

Complex jumpers may contain welded piping elements plus flexible-metal hoses. These are considered to be flexible-metal hose jumpers for naming purposes.

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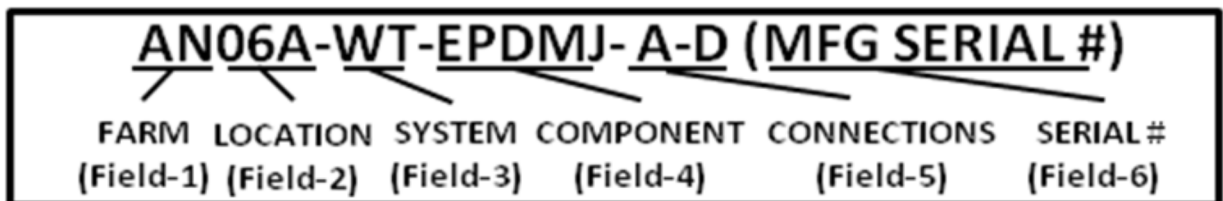


FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1*	FARM	Designates tank farm where equipment or component is located.
2	LOCATION	Designates building, tank, pit, or other structure the equipment or component is located in, on, or near. Items not directly related to a specific structure location are identified by the general area where they are located (241, 244, 151, etc.).
3	SYSTEM	Designates system with which equipment or component is associated.
4	COMPONENT	Describes equipment or component function, specifically FMJ for Flexible-Metal Hose Jumpers.
5	CONNECTIONS	Designates the connection points in the pit for both ends of the jumper as shown in the P&IDs and Piping Diagrams.
6	MFG SERIAL #	Designates the Manufacturer's Serial No. if assigned. ( <i>Note: The serial number is not a required field.</i> )
* Field # 1, Farm, may be eliminated if the location (Field #2) identifies the farm.		

A fictitious example of an EIN for a flexible-metal hose jumper between connection points A and D in the AN01A pit is: **AN01A-WT-FMJ-A-D (SS123-4567A)**. If there were no assigned manufacturer's serial number, the EIN would be: **AN01A-WT-FMJ-A-D**.

### 3.2.3.3 EPDM Hose Jumpers

The following are specific requirements for establishing EINs for EPDM hose jumpers. General requirements are listed previously in Section 3.2.1. If the jumper is relocated either to another connection point within the pit or structure or to another pit or structure, the EIN would be revised.



FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1*	FARM	Designates tank farm where equipment or component is located.
2	LOCATION	Designates building, tank, pit, or other structure the equipment or component is located in, on, or near. Items not directly related to a specific structure location are identified by the general area where they are located (241, 244, 151, etc.).
3	SYSTEM	Designates system with which equipment or component is associated.
4	COMPONENT	Describes equipment or component function, specifically EPDMJ for EPDM Hose Jumpers.
5	CONNECTIONS	Designates the connection nozzles in the pit for both ends of the jumper as shown in the P&IDs and Piping Diagrams.
6	MFG SERIAL #	Designates the Manufacturer's Serial No. if assigned. ( <i>Note: The serial number is not a required field.</i> )

An example of an EIN for an EPDM jumper between connection points F and 5 in the portable box POR104 is: **POR104-WT-EPDMJ-F-5 (I-xxxx)**. If there were no assigned manufacturer's serial number or if it is unknown which serial number of several identical jumpers in the structure connect from F to 5, the EIN would be: **POR104-WT-EPDMJ-F-5**.

### 3.2.4 Other Transfer System Elements Equipment Identification Numbering Convention

#### 3.2.4.1 Hose-In-Hose Adapters

The following are specific requirements for establishing EINs for hose-in-hose adapters. Hose-in-hose adapters are those elements of primary piping used to connect hose-in-hose transfer lines to other retrieval piping components, e.g., a jumper. The following are typical adapters.

- Primary hose PUREX connector (H-14-105309): This adapter has a hose connector on one end with a PUREX nozzle on the other. It is used to connect a HIHTL segment to a flexible jumper in a portable valve or distribution box.
- Spool Assembly (H-14-107391 SH8): This adapter is a section of stainless steel pipe with a hose connector on both ends. This is used to connect two segments of HIHTL or a HIHTL to another piping element such as the primary hose PUREX connector described above.

The HIHAD component acronym for a HIH Adapter will be used regardless of the design.



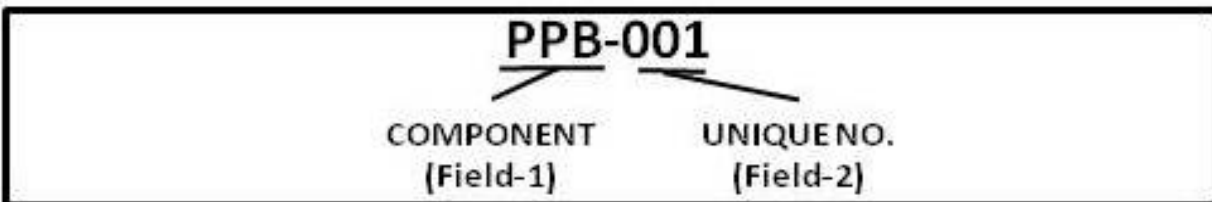
**TANK FARM EQUIPMENT  
IDENTIFICATION NUMBERING AND  
LABELING STANDARD**

FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1	LOCATION	Describes the pit or structure where the adapter is located.
2	SYSTEM	Designates system with which equipment or component is associated.
3	COMPONENT	Describes the type of equipment, specifically HIHAD for hose-in-hose adapters.
4	CONNECTION	Describes the port or nozzle location in the pit or structure associated with the adapter.
5	SEQUENCE	Unique sequence designator (e.g., 1, 2, or 3) identifies one or more adapters in line at that connection.

An example of an EIN for a Hose-In-Hose Adapter is: **POR104-WT-HIHAD-A-1** assigned to a Spool Assembly (Drawing H-14-107391, Item 8) located relative to Port or hose position A. For this example, a second Hose-In-Hose Adapter is connected to this Spool Assembly. The EIN for the adjacent adapter is: **POR104-WT-HIHAD-A-2** assigned to a Floor Nozzle Assembly (Drawing H-14-107391, Item 5).

### 3.2.4.2 PUREX Type Process Blank

The following are specific requirements for establishing EINs for PUREX Type Process Blanks. General requirements are listed previously in Section 3.2.1. If a PUREX Type Process Blank is relocated, the EIN would **NOT** change. The naming convention for PUREX Type Process Blanks is:

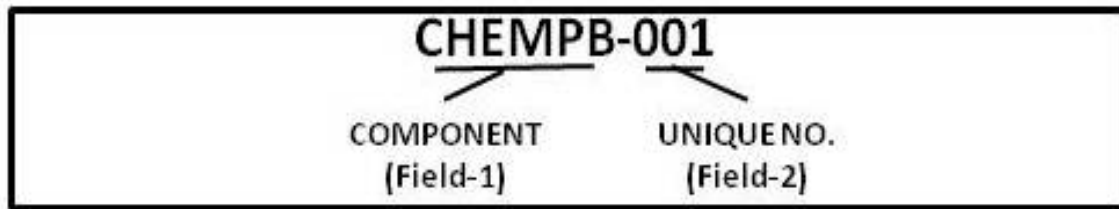


FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1	COMPONENT	Describes equipment or component function, specifically PPB signifying a PUREX Process Blank.
2	Unique No.	Designates the number assigned to a particular PUREX Process Blank wherever it is located.
Unique Numbers assigned to PPBs are found in Routing Board drawing # H-14-107346, Sheet 1.		

An example of an EIN for a PUREX Process Blank installed on Nozzle G in the ANA valve pit is: **PPB-001**. Refer to Item 6 of Table A-1 for the approved EIN numbering deviations associated with PUREX Process Blanks that have assigned numbers.

**3.2.4.3 Chem Connector Process Blank**

The following are specific requirements for establishing EINs for Chem Process Blanks. General requirements are listed previously in Section 3.2.1. Chem Connector process blanks are attached to hose couplings as opposed to a PUREX type nozzle. Hose connections can include standard hydraulic hoses or the type of connections used for the Hose-in-hose transfer system hoses and associated adapters. If a Chem Connector Process Blank is relocated, the EIN would **NOT** change. The naming convention for Chem Process Blanks is:



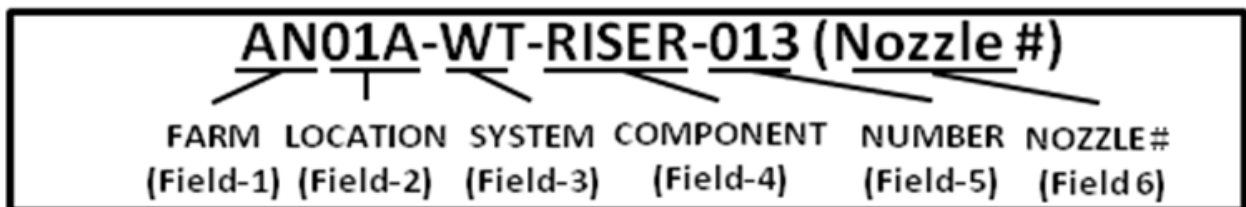
FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1	COMPONENT	Describes equipment or component function, specifically CHEMPB signifying a Chem Process Blank.
2	Unique No.	Designates the Unique No. for a particular Chem Process Blank wherever it is located.
Unique Numbers assigned to CHEMPBs are found in Routing Board drawing # H-14-107346, Sheet 1.		

An example of an EIN for a CHEM Process Blank installed on a HIHTL segment is:  
**CHEMPB-001**. Refer to Item 7 of Table A-1 for the approved EIN numbering deviations associated with CHEM Process Blanks that have assigned numbers.



**3.2.4.4 Tank Return (Numbered Riser Inlet Connection and In Pit Piping)**

The following are specific requirements for establishing EINs for numbered risers in pits that are used as tank returns (drop legs). Typically, these risers are part of the original tank construction consisting of a 4 inch, Schedule 40 pipe that extends through the floor of the pit and through the tank dome, terminating in the headspace of the tank. The end of the pipe is capped with a PUREX nozzle. The safety-significant portion of the riser is that portion of pipe that extends above the pit floor and the nozzle. The naming convention for the Tank Return (Numbered Riser Inlet Connection and In Pit Piping) is:

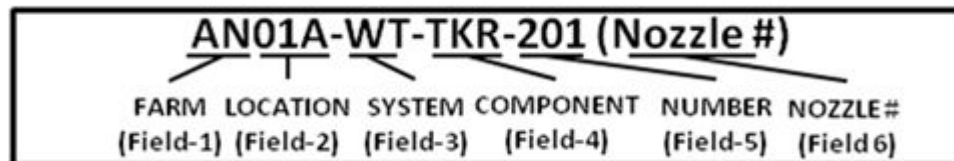


FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1*	FARM	Designates the Tank Farm.
2	LOCATION	Designates the pit or structure where the RISER is located.
3	SYSTEM	Designates system with which equipment or component is associated.
4	COMPONENT	Describes equipment or component function, specifically RISER signifying the assigned number for the riser.
5	NUMBER	Designates the assigned number of the riser.
6	NOZZLE #	Designates the Label or Number of the Nozzle as shown in the P&ID or on the routing board.
* Field # 1, Farm, may be eliminated if the location (Field #2) identifies the farm.		

An example for a tank return in the AW06A pump pit using 4-inch riser number 005 labeled G on the P&ID and pit drawings is: **AW06A-WT-RISER-005 (G)**.

### 3.2.4.5 Tank Return Equipment Mounted in a Riser

The following are specific requirements for establishing EINs for tank returns that are separate items of equipment mounted in a riser. The safety-significant portion of the tank return is that portion of pipe that extends above the pit floor and the nozzle. The naming convention for the Tank Return is:



FIELD NUMBER	DATABASE FIELD NAME	FIELD DESCRIPTION
1*	FARM	Designates the Tank Farm
2	LOCATION	Designates the pit or structure where the RISER is located.
3	SYSTEM	Designates system with which equipment or component is associated.
4	COMPONENT	Describes equipment or component function, specifically RISER signifying the assigned number for the riser.
5	NUMBER	Designates the assigned number of the tank return.
6	NOZZLE #	Designates the Label or Number of the Nozzle as shown in the P&ID or on the routing board.
* Field # 1, Farm, may be eliminated if the location (Field #2) identifies the farm.		

An example for a tank return is: **AP02A-WT-TKR-101 (3-1, 3-2 & 3-3)**. This tank return is mounted in the AP02A pit and has three nozzle connections.

### 3.2.4.6 Miscellaneous Equipment that Contain Integral Items of Safety-Significant Primary Piping

The following are types of equipment which would incorporate segments of Safety-Significant Primary Piping in the design.

- **Transfer Pumps:** Safety-significant piping includes the discharge nozzle and any piping that extends above the riser. Note that some pumps may contain integral tank returns and in some cases dilution piping that could be used as a tank return.
- **Sluicers:** The safety-significant piping in a sluicer includes the inlet nozzle or connection and any piping that extends above the riser.
- **Air-Lift Circulators:** A typical air-lift circulator (ALC) incorporates one or more tank returns. The Safety-Significant portion of an ALC is the inlet nozzle or connection and any piping that extends above the riser.

The naming convention for these items will follow the convention described in Section 3.2.1 above where the portions of the item that are considered to be safety-significant will be described in the Safety Equipment List.

### 3.3 Labeling Requirements

#### 3.3.1 General Labeling Requirements

Approved deviations for Labeling and EIN identification on drawings are listed in Table A-2 of Attachment A.

##### 3.3.1.2 Equipment Description

1. The 64-character description on RPP labels is comprised of two 32 character, alphanumeric fields (field length restricted to 25 characters on NLP format labels). These fields are contained in the SPF “Edit Tag” form in the “Label Details” section, as Title and Sub-Title.
2. Since the field is broken into two 32-character fields, no word wrap is available. When completing this information, ensure the description makes sense, since it will appear as two stacked and centered lines.
3. If space permits, the entire description is spelled out.
4. If space is insufficient for complete spelling, abbreviations are selected in the following order:
  - Labeling Abbreviation List (H-14-020000, Sheet 3) (5.1.5)
  - ASME Y1.1, “Abbreviations For Use On Drawings And In Text”
  - For items not covered by ASME Y1.1, use the Institute of Electrical and Electronics Engineers (IEEE), “Standard Dictionary of Electrical and Electronic Terms”
  - If a suitable abbreviation cannot be located, develop a good, common sense abbreviation.

NOTE: If using a component code abbreviation not currently referenced on labeling legend drawing H-14-020000, Sheet 3, initiate an engineering change notice to update the legend prior to referencing the new component code on a field drawing or label.

##### 3.3.1.3 Bar Code

A unique bar code number may be assigned and shown on each permanent label installed in TOC facilities. The bar code shall comply with Hanford Site standards for bar code development using the 3 of 9 code structure.

Bar code numbers used at TOC facilities shall be structured as follows (S123456WT), where “S” and “WT” remain constant on each label as a ready reference to identify RPP equipment, with a unique 6 digit (000001 to 999999) sequence number between.

#### **3.3.1.4 Power Supply Breaker Data (Fed From)**

The “fed from” field provides power source information for electrically powered equipment.

“Fed from” source on labels shall be the nearest upstream disconnect device.

When possible, descriptive locating information is listed rather than power source EIN (e.g., “MCC-001, Cubicle A-2” vs. EIN assigned to that cubicle).

#### **3.3.1.5 Old Equipment Identification Number**

The old EIN is used to bridge prior generation numbers to this standard.

This is the number found in the field when completing initial walkdowns (old EINs may have various formats).

Use of old EINs on new labels is optional and shall be discontinued when the majority of support drawings, procedures, and other documentation have been updated to show the new EIN. Functionality of old EINs will become limited as drawings, procedures, and other reference documents are updated.

#### **3.3.1.6 Electrical Equipment**

1. The following specific label information is required by code: Rated voltage, number of phases, supply power source, type (normal, standby, or emergency), and location.
2. Information labels that identify essential drawings and vendor information may be placed on other electrical equipment as desired by Operations and Maintenance.
3. Control threshold switches are labeled for their function.
4. Switches are labeled with position (ON-OFF, HAND-OFF-AUTO, etc.) indication and direction of operation, as necessary.

#### **3.3.1.7 Motor Control Centers**

1. The following specific label information is required by code:
  - Rated voltage, number of phases, supply power source, type (normal, standby, or emergency), and location.
  - MCC breakers not providing a power source shall be labeled “SPARE.”
  - Distribution panel breaker loads are identified inside the panel. Where space prohibits listing breaker loads, place breaker information on a panel schedule inside the panel door. Lighting loads list building area and elevation served.
  - Control panels (graphic and non-graphic) are labeled with single or multiple entry points at each section of the panel with individual identifiers on the front and back of each panel.

2. Information labels that identify essential drawings and vendor information may be placed on motor control centers and electrical distribution panels if desired by Operations and Maintenance (per ANSI/NFPA 70 Art 110-22, National Electrical Code). (5.1.1)

### 3.3.2 Vendor Supplied Labels

#### 3.3.2.1 Materials

1. All vendor supplied labels are of a polyester base. Differences occur in the attachment methods of those labels.
2. The label base film shall be 0.003-inch thick polyester, with a minimum thickness of 0.0015 inches of a solvent-based, acrylic adhesive. The tag shall have an over-lamination with a 0.001-inch thick exterior grade polyvinyl fluoride film, having a matte, non-glare surface and a 0.001-inch thick solvent-based acrylic adhesive. This transparent overlay shall provide abrasive wear, tamper resistance, and ultraviolet (UV) radiation protection.
3. Label adhesive performance: The adhesive shall be a 0.001-inch thick acrylic adhesive having the following minimum values:

Peel Strength at 70°F with a 72 hour dwell	
Stainless steel	80 ounces/inch of width
Polyester	70 ounces/inch of width
Shear Strength at 70°F	15 hours

4. Weathering: The label shall be weathered using ASTM D4329 and UVA 340 lamps. After 7,000 hours of exposure in a QUV weathering deck, the label shall remain adhered and readable.
5. Chemical resistance: The material shall have the following resistance to exposure:

CHEMICAL	RATING
Mild Acids	Excellent
Mild Alkalines and Salt	
Water	
Solvents	

### 3.3.2.2 Label Backing Plates

1. The backing plate (Tiger Tag™) is injection molded black LEXAN® with a recessed area for the actual label. Backing plate thickness is 0.158 inches at the edges and 0.108-inch thickness in the recessed area.
2. The two LEXAN® backing plates used at tank farms shall have the following size and corner rounds (dimensions in inches):

Code	Outside Dimensions			Inside Dimensions		
	Height	Width	Radius	Height	Width	Radius
NH	1.750	3.125	0.250	1.458	2.958	0.188
NF	3.250	4.750	0.375	2.458	3.958	0.188

See Figures 2 through 9 for label coding and format information.

3. NF size labels have eight, 0.125-inch diameter perimeter holes; three across the top, three across the bottom, and one each centered on the left and right sides, for field installation. (See Figure 2.)
4. NH size labels have five, 0.125-inch diameter perimeter holes; three across the top and one each on the left and right bottom corners, for field installation. (See Figure 3.)
5. NL size labels, when specified with the stainless steel backing plate, will have a single 0.125-inch diameter mounting hole in the upper left hand corner. (See Figure 4.)

### 3.3.2.3 Label Coding

There are eight vendor supplied label formats at RPP. These labels are fabricated utilizing the EIN database. All labels use black text on a white background. All labels except NF, NH, NT, and (13) have a black demarcation border. Label (13), designed only for GFCI, has a black and blue striped border. The NF, NH, and NT labels are mounted in LEXAN® backing plates and have no printed border. See Figures 2 through 9 for label coding and format information.

## 3.3.3 On Site Produced Labels

### 3.3.3.1 Label Usage and Materials

1. On site produced labels generally fall into two categories:
  - a. EIN labels. These typically reflect old EINs and are reserved for applications or farms where new labeling has not yet been instituted, but a permanent type label is required for interim operations until the equipment/ component is labeled to the new standard.
  - b. Functional information labels. These labels provide additional functional information about the equipment/component and may be used in conjunction with either new or old type EIN labels.

2. Plastic labels:
  - a. Use quality material suitable for the application.
  - b. Typically, for engraved labels two-ply, colored plastic, white background with black letters are used. Other color combinations may be used to indicate specific systems (e.g., red background with white letters for fire systems).
  - c. Outdoors or in high temperature environments use plastic labels only when specifically approved for the application by the label point of contact.
3. Metal labels:
  - a. Shall be fabricated from stainless steel or brass.
  - b. May be used for all equipment, except where exposed electrical connections are present.

### 3.3.3.2 Label Format and Sizing

1. Information on on-site fabricated labels shall be formatted similar to one of the vendor supplied formats shown in Section 3.3.
2. Nominal label size is 1.5 x 3 inches. Labels may be larger or smaller when warranted by installation requirements.
3. The standard label sizes are listed below:

Design ID:	Height	Width	# of Lines	Label Size Code	Figure Number
NL	1.00	2.00	5	CA	4
I3	1.50	2.50	5	BO	9
NM	1.50	2.50	6	BO	7
NH	1.50	3.00	7	C0	3
NT	1.50	3.00	4	CO	8
NE	2.00	7.00	7	E1	6
NF	2.5	4.00	7	B2	2
NK	4.00	13.75	7	E4	5

4. Font - USE ALL CAPITAL SIMPLE BLOCK TYPE FONT. All labels in a given area shall be of the same font.
5. Primary label information letters shall be 3/16-inch high (minimum), unless space prohibits this height.
6. Secondary label information letter height shall be 1/8-inch high (minimum space prohibits this height).

7. Character width-to-height ratio and inter-character spacing shall be such that all letters are clearly distinguishable from one another under typical viewing conditions for the installed location.
8. Spacing between words shall be at least one full character width.
9. Spacing between lines on the label shall typically be at least one times the character height of the line being printed (e.g., if one line is 3/16 inch and the next line is 1/8 inches, at least 1/8-inch spacing is required.)
10. When viewing distance, lighting conditions, etc., require, label size shall be increased, as necessary, to ensure label readability.
11. As label size is increased, lettering, word, and line dimensions shall be increased proportionally.
12. Control panels should use a structured size graduation as shown in Figure 10.
13. In all cases, label size and lettering shall be such that each character, word, and line are clearly distinguishable from adjacent characters, words, and lines under typical viewing conditions for the installed location.

### **3.3.4 Attaching Labels**

#### **3.3.4.1 Vendor Supplied Labels**

1. Labels may be adhesive, mounted directly to equipment, adhered to a LEXAN® backing plate, or laminated to a stainless steel tag.
2. Surfaces should be wiped with clean, dry cloth prior to mounting adhesive.
3. LEXAN® and stainless steel tag mounted labels may be attached to the equipment using vendor supplied adhesive, or hung with stainless steel aircraft cable, as best suited to the application:
  - Stainless cable is 0.063 inches in diameter in a 7 x 7 strand matrix and fastened with wire crimps of zinc/copper material sized for the cable.
  - Tuck under or cover sharp wire ends to protect personnel.
4. Vendor supplied adhesives, including die-cut 30 mil foam with acrylic adhesive on both sides, or acrylic adhesive supplied are used as part of the label. For heavy duty applications, vendor recommended label adhesives are used.

#### **3.3.4.2 On Site Labels**

1. Labels may be adhesive mounted directly to equipment or to a stainless steel plate.
2. RTV-108 adhesive sealant (supply number 17349404) or double-backed adhesive tape can be used, as best suited to the application.



3. Surfaces are wiped clean with a dry cloth prior to mounting adhesive.
4. Stainless steel tag mounted labels are attached to equipment using screws or hung with stainless steel aircraft cable, as best suited to the application:
  - Stainless cable is 0.063 inches in diameter in a 7 x 7 strand matrix and fastened with wire crimps of zinc/copper material sized for the cable.
  - Tuck under or cover sharp wire ends to protect personnel.
5. Radiation resistant ty-wraps may be used when suited to the application.

### 3.3.5 Label Placement

1. Labels shall be placed:
  - To be readily visible and readable
  - Horizontal (except hanging labels)
  - To eliminate identity confusion
  - So they will not be easily damaged or cause hazard to the operator
  - To avoid obscuring indications or interfering with equipment operation.
2. Labels are placed on flat surfaces to the extent possible:
  - On pipes, place the label along the horizontal run vs. around the pipe.
  - On motors, tanks, and other curved surfaces, locate the flattest portion, which also meets criteria for ready visibility and readability.
3. Large equipment (generators, vessels, etc.) are labeled in multiple locations.
4. Design labels for the environment in which they will be used (e.g., use heat or radiation resistant material in applicable areas.)
5. Valve and damper labels should not interfere with linkage and valve operators. Where possible, attach the label to the valve yoke using care to avoid damaging the valve stem. Do not thread label plates and connecting wire through valve hand wheel, operating chains, damper linkages, or removable T-handles.
6. Both ends of the extension (reach rod) of remote, mechanically operated valves are labeled.
7. Chain operated valves are labeled at the valve and on a metal ring through which the chain easily passes, so the label is always at the bottom of the chain loop.
8. If the valve cannot be clearly seen, OPEN or CLOSE directional arrows are included at the chain.
9. Wire is not used to hang tags inside electrical equipment.

### 3.3.6 Inactive Labels

1. Inactive labels indicate tank farm equipment is not currently in use but not abandoned and the equipment was not labeled as part of the tank farm re-labeling effort.
2. Inactive labels are black text on a white background, mounted on an orange LEXAN® backing plate.
3. Inactive labels shall use the NT label format shown in Figure 8, and be pre-fabricated and bar coded as described in Section 3.3.1. The EINs and labels are numbered from 500,001 through 502,000.
4. These can be installed with aircraft cable, acrylic adhesive pads or approved adhesives that meet the performance values identified in Section 3.3.2.

### 3.3.7 Temporary Labels

1. Temporary labels (Figure 11) are used to temporarily label tank farm equipment until a permanent label is received and installed in accordance with TFC-OPS-OPER-C-32.
2. Temporary labels may also be used to identify Hanford-installed modifications, or vendor equipment used to support WRPS operations (manipulated by procedure or work instruction), or hazardous energy control isolation in accordance with TFC-OPS-OPER-C-32.
3. Temporary labels reflect the assigned EIN, equipment description, “fed from” information (if applicable), and bar code number (if used) that will appear on the permanent label when received. Old equipment EINs may be included.
4. Current temporary labels include the acronym “RPP,” and are designated for use at tank farms as part of the River Protection Project (RPP.)
5. Early (old style) labels were fabricated with the acronym “FCMI” on them for “Field Configuration Management and Integration.”
6. Existing FCMI labels may be used until the supply is depleted.

## 4.0 DEFINITIONS

Consumables/Consumable Item. (1) Items or materials that lose their identity and are incorporated into another item when used (e.g., lubricants, paint, weld filler), or (2) items that are purchased in quantity and not tracked individually or labeled beyond any identification supplied by the manufacturer.

System boundary. A boundary defines where two systems interface. The boundary exists at an isolation valve, an electrical breaker, a piping connection point, or some other physical location that can be identified in the field and/or on a drawing.

## **5.0 SOURCES**

### **5.1 Requirements**

1. ANSI/NFPA 70 Art 110-22, "National Electrical Code."
2. DOE O 422.1, Chapter 2.r, "Component Labeling."
3. DOE O 252.1A, "Technical Standards Program."
4. PER-2004-4584.
5. PER-2004-5241.
6. PER-2004-5809.
7. PER-2005-0058.

### **5.2 References**

1. Drawing H-14-020000, "Tank Farm System P&ID Drawing Legend."
2. TFC-ENG-FACSup-C-23, "Equipment Identification and Data Management."
3. TFC-OPS-OPER-C-32, "Tank Farm Operations Temporary Component Identification Tags."

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<b>IDENTIFICATION NUMBERING AND LABELING STANDARD</b>		

**Figure 1. EIN and CMMS Label Data File Structure.**

	<b>FIELD NAME</b>	<b>FIELD TYPE</b>
EIN		A32
Status		A3
Label_code		A2
Sides		N
Fed_From		A32
Label_Title		A32
Label_SubTitle		A32
Old EIN		A20
Bar code		A9 (WMS Generated)

KEY:

A#: Alphanumeric (where # represents maximum number of characters in field)  
N: Numeric

Figure 2. NF Label Coding.



DESIGN ID: NF		LABEL SIZE CODE: B2		WIDTH: 4.00"		BORDER: 0.250"		HEIGHT: 2.50"	
LINE	BAR CODE REF DEN	MAX CHAR	ROW HGT	JUST C/L/R	START SIDE TOP	FONT			
1		23	0.26	C	2.00 0.40	R-HEL-BOLD			
2		32	0.17	C	2.00 0.75	R-HEL-BOLD			
3		32	0.17	C	2.00 0.95	R-HEL-BOLD			
4		29	0.17	C	2.00 1.35	R-HEL-BOLD			
5		18	0.13	R	-0.05 1.67	R-HEL-BOLD			
6	6 7.1	9	0.16	C	2.00 2.30	R-HEL-BOLD			
7		9	0.25	C	2.10 2.15	R-HEL-BOLD			

The NF label is applied to large Tiger Tag™ backing plates. The NF is available in one or two-sided format and can be hung or adhered with approved adhesives or acrylic adhesive backing pads.

It is designed for use in harsh environments. The large size is suitable for major components such as tanks, vessels, ventilation skids, breakers, pumps, and motors.

Figure 3. NH Label Coding.



DESIGN ID: NH		LABEL SIZE CODE: C0		WIDTH: 3.00"		BORDER: 0.188"		HEIGHT: 1.50"	
LINE	BAR CODE REF DEN	MAX CHAR	ROW HGT	JUST C/L/R	START SIDE TOP	FONT			
1		23	0.19	C	1.50	0.36	R-HEL-BOLD		
2		32	0.13	C	1.50	0.60	R-HEL-BOLD		
3		32	0.13	C	1.50	0.73	R-HEL-BOLD		
4		29	0.13	C	1.50	0.99	R-HEL-BOLD		
5		18	0.10	R	-0.20	1.16	R-HEL-BOLD		
6		9	0.11	C	1.50	1.49	R-HEL-BOLD		
7	6 7.1	9	0.15	C	1.60	1.39	R-HEL-BOLD		

The NH label is applied to small Tiger Tag™ backing plates. The NH is available in one or two-sided format and can be hung or adhered with approved adhesives or acrylic adhesive backing pads.

It is designed for use in harsh environments. This is the primary label for use in the tank farms. This label should be specified in all cases except for individual control panel instruments and controls, hand switches, etc., or where size prohibits.

Figure 4. NL Label Coding.

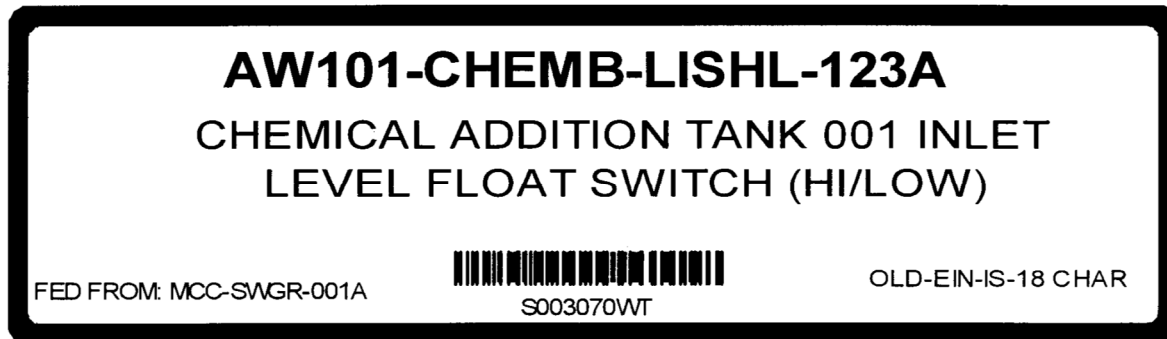


DESIGN ID: NL		LABEL SIZE CODE: CA		WIDTH: 2.00”		BORDER: 0.125”		HEIGHT: 1.00”	
LINE	BAR CODE REF DEN	MAX CHAR	ROW HGT	JUST C/L/R	START SIDE TOP	FONT			
1		23	0.13	C	1.00 0.20	R-HEL-BOLD			
2		25	0.10	C	1.00 0.40	R-HEL-BOLD			
3		25	0.10	C	1.00 0.50	R-HEL-BOLD			
4		09	0.10	C	1.00 0.83	R-HEL-BOLD			
5	4 7.1	09	0.10	C	1.10 0.73	R-HEL-BOLD			

The NL label is a polyester label designed for multiple purposes. It is available in one-sided format with an integral adhesive pad. It is also available in one or two-sided format attached to a stainless steel backing plate that can be hung with aircraft cable.

- Description fields limited to 25 characters each
- No provision for old EIN
- No provision for FED FROM data.

Figure 5. NK Label Coding.



(1/2 scale)

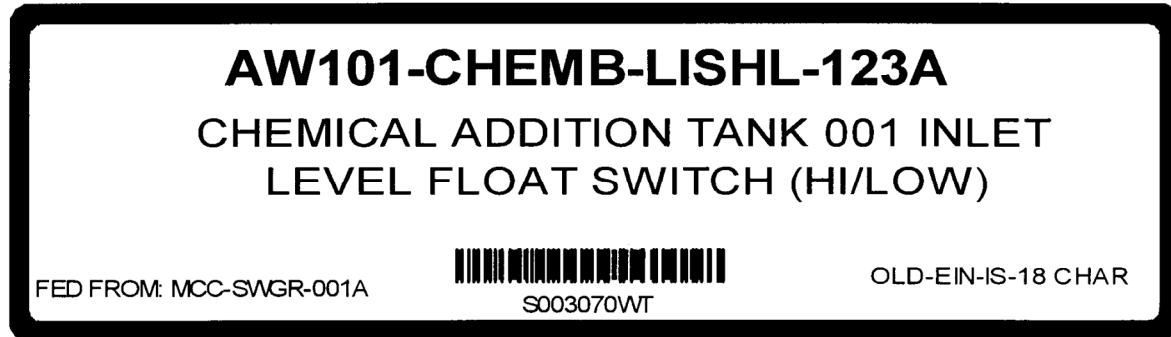
DESIGN ID: <b>NK</b>		LABEL SIZE CODE: <b>E4</b>		WIDTH: <b>13.75”</b>		BORDER: <b>0.438”</b>		HEIGHT: <b>4.00”</b>	
LINE	BAR CODE REF    DEN		MAX CHAR	ROW HGT	JUST C/L/R	START SIDE    TOP		FONT	
1			23	0.70	C	6.75	0.20	R-HEL-BOLD	
2			32	0.45	C	6.75	0.85	R-HEL-BOLD	
3			32	0.45	C	6.75	1.38	R-HEL-BOLD	
4			18	0.25	R	-0.10	2.40	R-HEL-BOLD	
5			09	0.20	C	6.75	2.44	R-HEL-BOLD	
6	5	4.0	09	0.45	C	6.93	2.25	R-HEL-BOLD	
7			29	0.23	L	0.60	2.40	R-HEL-BOLD	

The NK label is the largest label currently in use. It is available in one-sided format only, and is supplied with a 30 mil acrylic adhesive backing.

This label is normally used for large sized equipment, or equipment that must be viewed from a considerable distance, space permitting.



Figure 6. NE Label Coding.



(1/2 scale)

DESIGN ID: NE		LABEL SIZE CODE: E1		WIDTH: 7.00”		BORDER: 0.219”		HEIGHT: 2.00”	
LINE	BAR CODE REF DEN		MAX CHAR	ROW HGT	JUST C/L/R	START SIDE TOP		FONT	
1			23	0.38	C	3.50	0.45	R-HEL-BOLD	
2			32	0.23	C	3.50	0.80	R-HEL-BOLD	
3			32	0.23	C	3.50	1.05	R-HEL-BOLD	
4			09	0.15	C	3.50	1.53	R-HEL-BOLD	
5	4	7.1	09	0.20	C	3.60	1.40	R-HEL-BOLD	
6			18	0.15	R	0.00	1.45	R-HEL-BOLD	
7			29	0.12	L	0.45	1.45	R-HEL-BOLD	

The NE is a smaller version of the NK label, also available in one-sided format only, and supplied with a 30 mil acrylic adhesive backing.

This label is normally used for panel identification, such as SHMS and CAM panels.

Figure 7. NM Label Coding.

**A244-VTA-CONV-910**ANN EXH RADIATION INDICATING  
ALARM SWITCH SIGNAL CONVERTER

NM S024620WT

DESIGN ID: NM		LABEL SIZE CODE: B0		WIDTH: 2.50”		BORDER: 0.188”		HEIGHT: 1.50”	
LINE	BAR CODE REF DEN		MAX CHAR	ROW HGT	JUST C/L/R	START SIDE TOP		FONT	
1			23	0.15	C	1.25	0.13	R-HEL-BOLD	
2			32	0.12	C	1.25	0.32	R-HEL-BOLD	
3			32	0.12	C	1.25	0.46	R-HEL-BOLD	
4			18	0.11	R	-0.20	0.64	R-HEL-BOLD	
5			09	0.11	C	1.25	1.00	R-HEL-BOLD	
6	5	7.1	09	0.16	C	1.33	0.90	R-HEL-BOLD	

The NM is a polyester label designed primarily for control panel use. This label is available in one-sided format only and comes with an integral 30 mil adhesive backing pad.

No provision for FED FROM data.

Figure 8. NT Label Coding.



(Orange outer border)

DESIGN ID: NT		LABEL SIZE CODE: C0		WIDTH: 3.00"		BORDER: 0.188"	HEIGHT: 1.50"
LINE	BAR CODE REF DEN	MAX CHAR	ROW HGT	JUST C/L/R	START SIDE TOP	FONT	
1		08	0.59	C	1.50 0.62	R-HEL-BOLD	
2		16	0.30	C	1.50 1.48	R-HEL-NAR BOLD	
3		09	0.13	C	1.50 1.10	R-HEL-BOLD	
4	3 7.1	09	0.20	C	1.60 0.98	R-HEL-BOLD	

The NT format is used for “inactive” labels only (see reference Section 3.7).

Figure 9. (13) Label Coding.

**GFCI-00001**

FED FRM: PANEL MPC-E CKT 3



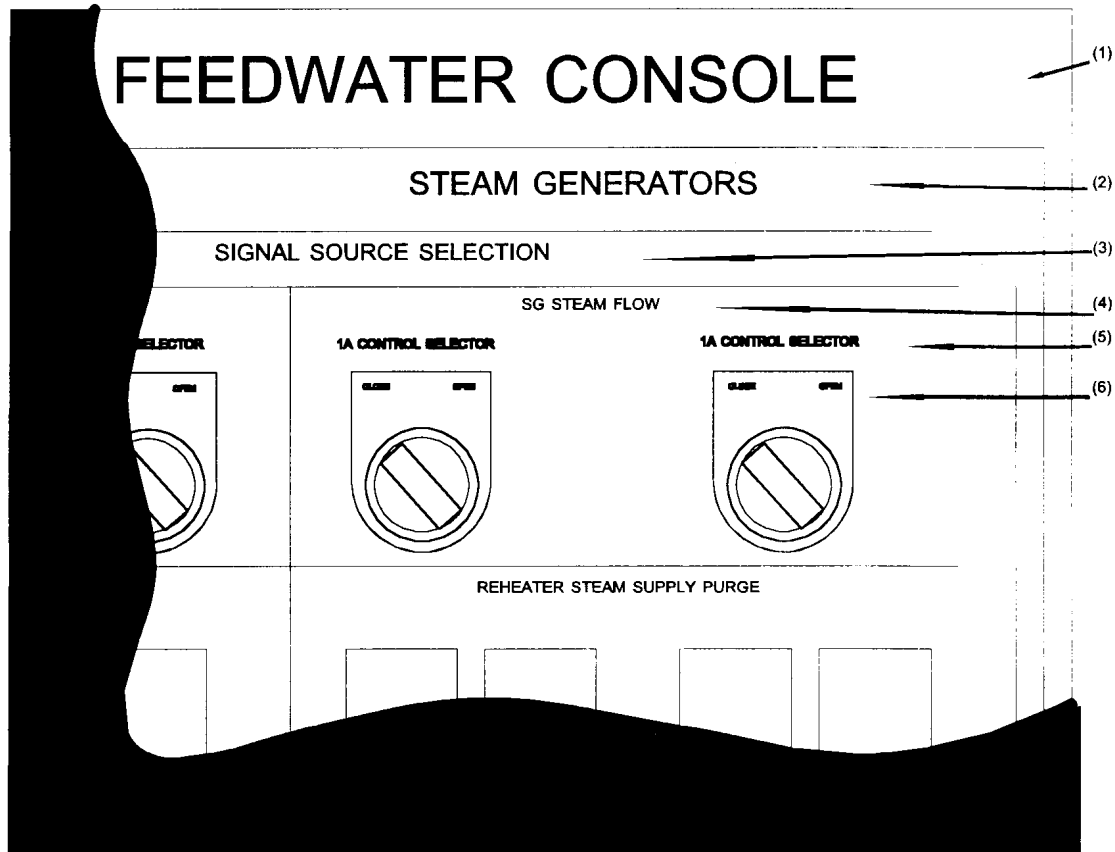
13

S050001WT

DESIGN ID: 13		LABEL SIZE CODE: B0		WIDTH: 2.50"		BORDER (Black & White): 0.188"		HEIGHT: 1.50"
LINE	BAR CODE REF DEN	MAX CHAR	ROW HGT	JUST C/L/R	START SIDE TOP	FONT		
1		10	0.15	C	1.25 0.13	R-HEL-BOLD		
2		9	0.12	C	1.25 0.32	R-HEL-BOLD		
3		20	0.12	C	1.25 0.46	R-HEL-BOLD		
4		10	0.11	R	-0.20 0.64	R-HEL-BOLD		
5	4 7.1	10	0.16	C	1.33 0.90	R-HEL-BOLD		

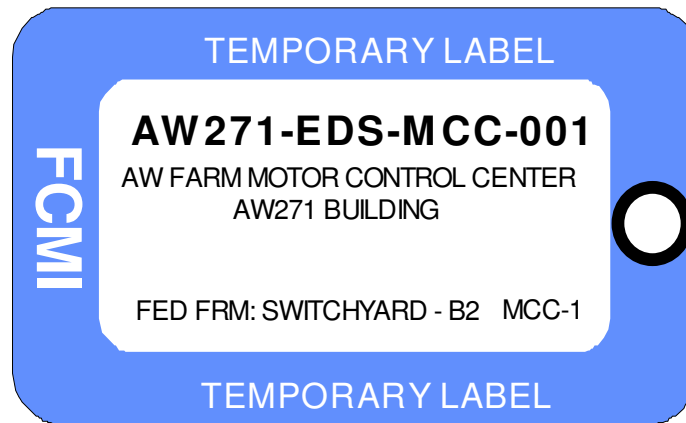
Label (13) is a polyester label designed for Ground Fault Circuit Interrupters. The border of the label is black and blue strips. This label is available in one-sided format only and comes with an integral 30 mil adhesive backing pad.

Figure 10. Control Panel Labels.

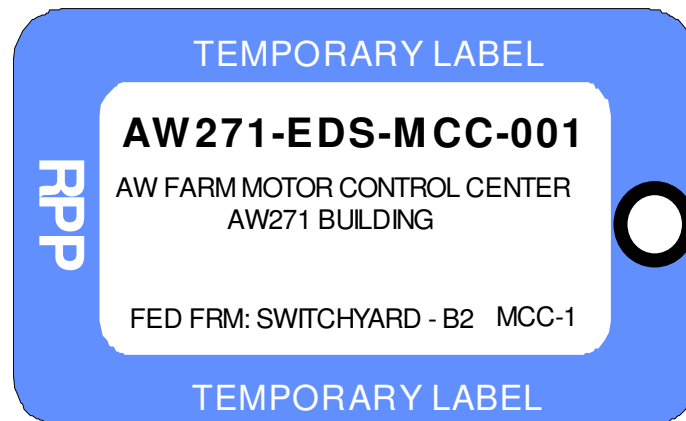


ITEM NO.	LABEL IDENTIFYING	CHARACTER HEIGHT
1	Console	1 inch
2	Major Panel	1/2 inch
3	Sub-Panel	3/8 inch
4	Sub-Panel Grouping	1/4 inch
5	Panel Elements	3/16 inch
6	Control Options	1/8 inch

Figure 11. Temporary Labels.



Old Style Label



New Style Label

<b>ENGINEERING</b>	<b>Document</b>	<b>TFC-ENG-STD-12, REV D-8</b>
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<b>TANK FARM EQUIPMENT</b>	<b>Issue Date</b>	<b>February 29, 2016</b>
<b>IDENTIFICATION NUMBERING AND</b>		
<b>LABELING STANDARD</b>		

## **ATTACHMENT A — APPROVED DEVIATIONS**

## ATTACHMENT A — APPROVED DEVIATIONS (cont.)

Table A-1. Approved Deviations for EIN Numbering Conventions in TFC-ENG-STD-12.

No.	TFC-ENG-STD-12 Incorporation Section	Approved Deviation
1	1.0	EINs for equipment and piping installed in the 222-S Laboratory shall comply with ATS-310, Section 11.18, "Equipment and Piping Labeling."
2	1.0	EINs for equipment and piping installed in the 242-A Evaporator shall comply with drawing H-2-98986, Sheet 1.
3	1.0	EINs of equipment and piping installed in the Effluent Treatment Facility (ETF) shall comply with drawing H-2-89351-1, "Piping & Instrument Diagram - Legend".
4	1.0	EINs of equipment and piping installed in the Treated Effluent Disposal Facility (TEDF) shall comply with drawing H-2-79601-1, "P&ID Collection Symbols and Legend" and H-2-815119-1, "P&ID Disposal Station Symbols and Legends".
5	1.0	EINs of equipment and piping installed in the Liquid Effluent Retention Facility (LERF) shall comply with drawing H-2-79601-1, "P & ID LERF Basin & ETF Influent Symbols & Legend" and H-2-827217-1, "Piping P&ID Groundwater Transfer, Head-End".
6	Not Incorporated	EINs for equipment and piping installed as part of the Demonstration Bulk Vittrification Project (DBVS) shall be labeled in a standardized format in accordance with the contractor's standard labeling program. TFC-ENG-STD-12, Tank Farm Equipment Identification Numbering and Labeling Standard may be used as guidance.
7	Appendix A	The EIN numbering convention on some of the leak detection terminal boxes in AP Farm Project W-314 have an approved deviation to use a non-standardized EIN. The EIN convention is in conformance with this standard except "W314" is inserted between the component field and the sequence field. The EIN format on these terminal boxes as follows: APxxx-WT-TBX-W314-xxx



## ATTACHMENT A — APPROVED DEVIATIONS (cont.)

Table A-1. Approved Deviations for EIN Numbering Conventions in TFC-ENG-STD-12. (cont.)

No.	TFC-ENG-STD-12 Incorporation Section	Approved Deviation																											
8	1.0	EIN numbering of consumables (e.g., Safety-Significant Waste Drum Vents) is exempt from this standard.																											
9	3.2.4	Assigned EINs for any PUREX Process Blank (PPB) that is listed as active/inactive in the Safety Equipment Compliance Database may keep its assigned number until such time as the PPB is removed and the original EIN permanently retired. If the PPB is to be reused, the next number in the PPB sequence assigned with a new label affixed.																											
10	3.2.4	Assigned EINs for any CHEM Process Blank (CHEMPB) that is listed as active/inactive in the Safety Equipment Compliance Database may keep its assigned number until such time as the CHEMPB is removed and the original EIN permanently retired. If the CHEMPB is to be reused, the next number in the CHEMPB sequence assigned with a new label affixed.																											
11.	3.2.1	<p>This deviation is to permit the use of currently assigned EINs for all associated C- 107 MARS equipment.</p> <p>The following are examples of discrepant equipment IDs:</p> <table><tr><th>No</th><th>C-107 MARS Project Equipment ID</th><th>STD-12 Equipment ID</th></tr><tr><td>1</td><td>POR237-WT-PT1-154</td><td>POR237-WT-PT-154A</td></tr><tr><td>2</td><td>POR237-WT-PT2-154</td><td>POR237-WT-PT-154B</td></tr><tr><td>3</td><td>POR237-WT-FV1-155</td><td>POR237-WT-FV-155A</td></tr><tr><td>4</td><td>POR237-WT-FV2-155</td><td>POR237-WT-FV-155B</td></tr><tr><td>5</td><td>POR237-WT-FT1-154</td><td>POR237-WT-FT-154A</td></tr><tr><td>6</td><td>POR237-WT-FT2-154</td><td>POR237-WT-FT-154B</td></tr><tr><td>7</td><td>“PNL-A” in High Pressure Water Skid 1</td><td>POR239-WT-DP-001</td></tr><tr><td>8</td><td>“PNL-B” in High Pressure Water Skid 1</td><td>POR239-WT-DP-002</td></tr></table>	No	C-107 MARS Project Equipment ID	STD-12 Equipment ID	1	POR237-WT-PT1-154	POR237-WT-PT-154A	2	POR237-WT-PT2-154	POR237-WT-PT-154B	3	POR237-WT-FV1-155	POR237-WT-FV-155A	4	POR237-WT-FV2-155	POR237-WT-FV-155B	5	POR237-WT-FT1-154	POR237-WT-FT-154A	6	POR237-WT-FT2-154	POR237-WT-FT-154B	7	“PNL-A” in High Pressure Water Skid 1	POR239-WT-DP-001	8	“PNL-B” in High Pressure Water Skid 1	POR239-WT-DP-002
No	C-107 MARS Project Equipment ID	STD-12 Equipment ID																											
1	POR237-WT-PT1-154	POR237-WT-PT-154A																											
2	POR237-WT-PT2-154	POR237-WT-PT-154B																											
3	POR237-WT-FV1-155	POR237-WT-FV-155A																											
4	POR237-WT-FV2-155	POR237-WT-FV-155B																											
5	POR237-WT-FT1-154	POR237-WT-FT-154A																											
6	POR237-WT-FT2-154	POR237-WT-FT-154B																											
7	“PNL-A” in High Pressure Water Skid 1	POR239-WT-DP-001																											
8	“PNL-B” in High Pressure Water Skid 1	POR239-WT-DP-002																											
12.	3.2.2.2	<p>This deviation is to permit the legacy (old) Hose-in-Hose Waste Transfer Line Segments (HIHTL) in the CHAMPS database and on drawings that did not use the “HIHTL” designator, but are only listed by their serial number:</p> <table><tr><td>Farm</td><td>Equipment ID Number</td></tr></table>	Farm	Equipment ID Number																									
Farm	Equipment ID Number																												

## ATTACHMENT A — APPROVED DEVIATIONS (cont.)

Table A-1. Approved Deviations for EIN Numbering Conventions in TFC-ENG-STD-12. (cont.)

No.	TFC-ENG-STD-12 Incorporation Section	Approved Deviation	
		C	I-07243-0-01
		C	I-07243-0-02
		C	I-07243-0-03
		C	I-12023-0-01
		C	I-12023-0-02
		C	I-12023-0-03
		C	I-12023-0-04
		C	I-12023-0-05
		C	I-12023-0-06
		C	I-15390-0-01
13.	3.2.2.2 (cont.)	Farm	Equipment ID Number
		C	I-15390-0-02
		C	I-15390-0-03
		C	I-15390-0-04
		C	I-15390-0-05
		C	I-15390-0-06
		C	I-15390-0-07
		C	I-15390-0-08
		C	I-15390-0-09
		C	I-15390-0-10
		C	I-15390-0-11
		C	I-15390-0-12
		C	I-15390-0-13
		C	I-19643-1
		C	I-19643-3
		C	I-34610-0-01
		C	I-57780-0-01
		C	I-57780-0-02
		C	I-57780-0-03
		C	I-57780-0-04
		C	I-57780-0-05
		C	I-65376-0-01
		C	I-65376-0-02
		C	I-65376-0-03
		C	I-68511-0-01

## ATTACHMENT A — APPROVED DEVIATIONS (cont.)

Table A-1. Approved Deviations for EIN Numbering Conventions in TFC-ENG-STD-12. (cont.)

No.	TFC-ENG-STD-12 Incorporation Section	Approved Deviation	
		C	I-68511-0-02
		C	I-71065-0-01
		C	I-95247-0-02
14.	3.2.1	This deviation is for the continued use of existing AY/AZ VTP EINs assigned under a different convention standard. EINs and labeling of equipment, piping/duct and instruments installed for the AY/AZ VTP were developed prior to the H-14-020000 standard. In addition, the EINs were constrained by the original MICON monitoring and control system and have carried forward as the control system was upgraded. As new equipment is added to the system, the current EIN standard will be used. Exceptions, which must be approved by the System Engineer, can be made in the case where the new equipment exactly duplicates an existing function and Human Factors concerns would dictate using the original naming convention.	
15.	3.2.1	This deviation is for the continued use of existing AY/AZ VTP EINs assigned under a different convention standard. EINs and labeling of equipment, piping/duct and instruments installed for the AY/AZ VTP were developed prior to the H-14-020000 standard. In addition, the EINs were constrained by the original MICON monitoring and control system and have carried forward as the control system was upgraded. As new equipment is added to the system, the current EIN standard will be used. Exceptions, which must be approved by the System Engineer, can be made in the case where the new equipment exactly duplicates an existing function and Human Factors concerns would dictate using the original naming convention.	
16	3.2.1	For the AP Exhauster Installation project, equipment EINs established as part of the original AP Exhauster project with a general prefix of AP241, in lieu of building numbers required by TFC-ENG-STD-12, can be used.	
17	3.2.1	For the SY Exhauster Installation project, equipment EINs established as part of the original SY Exhauster project with a general prefix of SY241, in lieu of building numbers required by TFC-ENG-STD-12, can be used.	

## ATTACHMENT A — APPROVED DEVIATIONS (cont.)

Table A-2. Approved Deviations for Labeling and EIN Identification on Drawings in TFC-ENG-STD-12.

No.	TFC-ENG-STD-12 Section Reference	Approved Deviation
1	1.0	Labeling of equipment and piping installed in the 222-S Laboratory shall comply with ATS-310, Section 11.18, "Equipment and Piping Labeling."
2	1.0	Labeling of equipment and piping installed in the 242-A Evaporator shall comply with drawing H-2-98986, Sheet 1.
3	1.0	Labeling of equipment and piping installed in the Effluent Treatment Facility (ETF) shall comply with drawing H-2-89351-1, "Piping & Instrument Diagram - Legend".
4	1.0	Labeling of equipment and piping installed in the Treated Effluent Disposal Facility (TEDF) shall comply with drawing H-2-79601-1, "P&ID Collection Symbols and Legend" and H-2-815119-1, "P&ID Disposal Station Symbols and Legends".
5	1.0	Labeling of equipment and piping installed in the Liquid Effluent Retention Facility (LERF) shall comply with drawing H-2-79601-1, "P & ID LERF Basin & ETF Influent Symbols & Legend" and H-2-827217-1, "Piping P&ID Groundwater Transfer, Head-End".
6	Not Incorporated	Component identifiers for the Effluent Treatment Facility (ETF), Liquid Effluent Retention Facility (LERF), and 200 Area Treated Effluent Disposal Facility (TEDF) may be written with or without dashes. For example, AOV60A019, AOV-60A019, and AOV-60A-019 all refer to the same component. Monitor and Control System (MCS) tag numbers do not contain dashes (AOV60A019). Field labels generally contain dashes (AOV-60A-019).
7	Not Incorporated	Labeling of equipment and piping installed as part of the Demonstration Bulk Vittrification Project (DBVS) shall be labeled in a standardized format in accordance with the contractor's standard labeling program. TFC-ENG-STD-12, Tank Farm Equipment Identification Numbering and Labeling Standard may be used as guidance.

## ATTACHMENT A — APPROVED DEVIATIONS (cont.)

Table A-2. Approved Deviations for Labeling and EIN Identification on Drawings in  
TFC-ENG-STD-12. (cont.)

No.	TFC-ENG-STD-12 Section Reference	Approved Deviation
8	Appendix A	<p>The labeling convention on some of the leak detection terminal boxes in AP Farm Project W-314 have an approved deviation to use a non-standardized EIN. The EIN convention is in conformance with this standard except “W314” is inserted between the component field and the sequence field.</p> <p>The EIN format on these terminal boxes as follows: APxxx-WT-TBX-W314-xxx</p>
9	1.0	Labeling of consumables (e.g., Safety-Significant Waste Drum Vents) is exempt from this standard.
10	3.2.2	<p>Labels do not need to be installed on existing or future Safety-Significant buried waste transfer lines.</p> <p>EINs for Safety-Significant buried waste Transfer lines are not required be included on drawings as long as the drawings contain the System Designator (Field 5) and the Line # (Field 6)</p>
11	3.2.2	<p>Only the Manufacturer’s Serial Number is required as a label on a Hose-in-Hose Waste Transfer Line (HIHTL).</p> <p>EINs for Hose-in-Hose Waste Transfer lines are not required for drawings. Drawing H-14-106249, “HIHTL Tracking Table” requires only the Manufacturer’s Serial No.</p>
12	3.2.4	<p>Labels are not required to be affixed to tank returns, installed prior to January 31, 2010.</p> <p>EINs for tank returns are not required to be added to drawings as long as the drawings show the alpha/numeric connection(s) on the tank return.</p>

## ATTACHMENT A — APPROVED DEVIATIONS (cont.)

No.	TFC-ENG-STD-12 Section Reference	Approved Deviation
13	3.2.4	Labels for PUREX Process Blanks are required to have the assigned unique number but the Component Identifier, PPB, is optional.
14	3.2.4	Labels for CHEM Process Blanks are required to have the assigned unique number but the Component Identifier, CHEMPB, is optional.
15	3.2.3	Labels do not need to be affixed to jumpers installed prior to January 31, 2010.  EINs for jumpers are not required to be added to drawings as long as the drawings show the pit or structure (Fields 1,2) and the connections points (field 5).
16	3.2.4	Labels do not need to be affixed to Hose-in-Hose Adapters installed prior to January 31, 2010.  EINs for Hose-in-Hose Adapters are not required to be added to drawings as long as the drawings show the connection (Field 4) and identify the item, either pictorially or as a callout.
17	3.2.4	Labels do not need to be affixed to Plutonium Uranium Extraction (PUREX) Type Process Blanks installed prior to January 31, 2010.  EINs for PUREX Type Process Blanks installed prior to January 31, 2010, are not required to be added to drawings as long as the drawings show the connection (Field 4) and identify the item, either pictorially or as a callout.
18	3.2.4	Labels do not need to be affixed to Chem Connector Process Blanks installed prior to January 31, 2010.  EINs for Chem Connector Process Blanks installed prior to January 31, 2010, are not required to be added to drawings as long as the drawings show the connection (Field 4) and identify the item, either pictorially or as a callout.
19	3.2.4	Labels are not required to be placed on risers in pits that are used as a tank return (drop leg).  EINs for risers used as tank returns are not required to be added to drawings as long as the drawings show the riser number (Field 5) and/or the connection (Field 6).